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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
07/926,227	08/06/92	GEIGER A	JEN-108

DELACROIX-MUIRHE, C EXAMINER

11M1

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ART UNIT	PAPER NUMBER
1102	7

DATE MAILED: 05/27/93

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☒ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 14-25 and 27-34 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims 1-13 and 26 have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 14-25 and 27-34 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

The Examiner hereby acknowledges that claims 1-13 and 26 are cancelled and that 14-25 and 27-34 are presented for prosecution on the merits.

Applicant's arguments with respect to claims 14-25 and 27-34 have been considered but are deemed to be moot in view of the new grounds of rejection.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Evaluations of the level of ordinary skill in the art requires consideration of such factors as various prior art approaches, types of problems encountered in the art, rapidity with which innovations are made, sophistication of technology involved, educational background of those actively working in the field, commercial success, and failure of others.

The "person having ordinary skill" in this art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The evidence of record including the references and/or the admissions are considered to reasonably reflect this level of skill.

Claims 14-25 and 27-34 are rejected under 35 U.S.C. § 103 as being unpatentable over Morrey (4,124,466) in view of Pratt, Jr. (3,941,670).

Morrey discloses a method for increasing vibrational energy states of, involving for example cyclopropane, which involves: (a) passing laser radiation into a parametric oscillator to achieve desired frequencies (b) "focusing the radiation into a chamber which contain the reactants, and removing the products. In addition, Morrey disclose that high temperatures should be avoided due to the fact that such high temperatures may cause unwanted "bothersome" side reactions. Finally, the use of pulsed laser radiation is advantageous in preventing hazardous temperature increases. Kindly see col. 4, lines 5-21; col. lines 53-58; col. 17, lines 2-6; and Table IV.

However, Morrey does not specifically disclose tuning laser radiation to an absorption band of a molecular substance. Yet, the Examiner turns to Pratt, Jr. Pratt, Jr. discloses using laser radiation reflected by an "oscillatory reflective surface," to excite molecules, due to the absorption of the laser by said

molecules. While it is apparent from Pratt Jr.'s disclosure that this method is directed towards macromolecules such as cells, it is also applicable to breaking down other molecules such as hydrocarbons. Kindly see col. 1, lines 37-40; col. 3, lines 65-68; col. 4, lines 33-39; and col. 7, lines 15-16.

Therefore, it would have been obvious to one of ordinary skill in the art to combine the features of Morrey with the features of Pratt, Jr. because both references are directed toward laser technology. Furthermore, Morrey states that the disclosed laser process provides the advantage of "tailored" chemical reactions as a results of being able to "excite proper chemical bonds". Kindly the col. 26, lines 30-31.

In addressing claims 17 and 28, which recite the reactant as being methane, it would have been obvious to the skilled artisan because methane is a specific hydrocarbon as well as a homologue of cyclo propane, thus reading upon the prior art of record.

With respect to claims 19-21, 23-24, 29, 31, and 34, which recite recirculating residual hydrocarbon gas, compressing and heating of the reactants, distillation of the products, and wavelength, it would have been obvious to one of ordinary skill in the art because it is not "inventive" to discover through routine experimentation, optimum process parameters. Kindly see In re Aller 105 USPQ p. 235.

"It is well settled that references are good not only for what they specifically teach or disclose, but also, for what they would collectively suggest to one of ordinary skill in the art" see In re Keller, 208 USPQ 871 (CCPA 1981).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. Delacroix-Muirheid whose telephone number is (703) 308-3319.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

C. Delacroix-Muirheid:rg
May 25, 1993

John Niebling
Supervisory Patent Examiner
Patent Examining Group 110